

20 Ways to Maximize the Use of Single Switch Technology with Students with Severe Disabilities

Students with severe physical and/or cognitive disabilities may find it very difficult to engage in activities in their environment. Single switch technology can provide the means for adapting activities to meet student's diverse needs (Brett, 1995). Single switches can be used as tools for promoting the development of cognitive skills (e.g., establishing cause-effect relationships), developing purposeful motor skills (e.g., reaching, pressing), enhancing social and play skills (e.g., facilitating interactions with peers and adults), and increasing independence and control over the environment.

Single switches come in a range of different shapes and sizes and can be activated via any number of purposeful motor movements. Some switches are activated by pulling, some by pushing. Others are activated by using your mouth to "sip and puff" (in much the same way one would use a straw). If a student is able to move a body part, and he/she can replicate that movement, then a switch can be obtained that utilizes that movement (Glennan & Decoste, 1997).

Single switches can be purchased from a variety of manufacturers. Figure 1 provides a list of some of the manufacturers of commercially available switches that have been used by this author. Interested readers can contact these manufacturers to request copies of catalogs. However, purchasing a switch that is appropriate for a student is only the first step. The next step

involves identifying an array of functional and meaningful activities that can be adapted to incorporate the use of single switch technology.

Single switch technology can be used with battery operated devices, electronic devices, and computers. Simple modifications are necessary in order to use battery-operated devices with a single switch. There are three common ways to make these modifications. One strategy is to modify the existing button that is used to activate the device. For example, a talking picture frame (i.e., a picture frame that allows a short message to be recorded and then played back by pressing a button) can be modified by gluing a larger button onto the existing one so that the student can press it more easily. A second strategy is to use a battery interrupter (see figure 2). A battery interrupter fits into the device's battery compartment to make it switch accessible. Battery interrupters are relatively inexpensive and are available from many of the single-switch manufacturers listed in Figure 1. A battery interrupter is used by inserting one end (the end with the copper disk) into the battery compartment of the toy/device and then plugging a switch into the other end. Now, when a student presses the switch, the toy/device is activated. An alternative to using a battery interrupter is to permanently modify the device for switch access. This is accomplished by rewiring the device and installing a switch jack. Once the switch jack is installed, a switch can be plugged directly into the toy and then accessing

Figure 1-Sample list of commercially available switches

Manufacturer	Phone Number	Web Address
AbleNet, Inc.	800-322-0956	www.ablenetinc.com
Adaptivation, Inc.	800-723-2783	www.adaptivation.com
Crestwood Communication Aids, Inc.	414-352-5678	www.communicationaids.com
Don Johnston, Inc.	800-999-4660	www.donjohnston.com
Enabling Devices	800-832-8697	www.enablingdevices.com
Luminaud, Inc.	800-255-3408	www.luminaud.com
Mayer-Johnson LLC	800-588-4548	www.mayer-johnson.com
Prentke Romich Company	800-262-1984	www.prentrom.com
TASH	800-463-4685	www.tashinc.com
Words +, Inc.	800-869-8521	www.words-plus.com
ZYGO Industries, Inc.	800-234-6006	www.zygo-usa.com

the switch activates the device. Rocklage, Peschong, Gillett, & Delohery (1996) provide instructions for modifying devices to allow for switch access.

There are a number of electrical devices that, with supervision, are appropriate for use by students. In order to use a switch to power an electrical device, a switch interface is needed. A switch interface serves as a link that enables the switch to turn on an electrical device. A switch interface is very simple to use and involves plugging the switch and the electronic device into the interface, and then plugging the interface into the wall outlet. Then, accessing the switch turns on the electrical device. Figure 3 provides a photo of one frequently used switch interface, the Power Link 3(r) by AbleNet.

The increased use of computers in educational and home settings has resulted in the development of a wide variety of computer software programs for students. Some of this software can be operated via single switch technology and can provide opportunities to engage in cause and effect activities. In order to use a single switch to operate a computer one must use a switch adapted mouse. A switch adapted mouse adapts the primary mouse button (e.g, the left click button) for activation through a switch. You can purchase a switch adapted mouse through manufacturers such as Madentec, Intellitools, R. J. Cooper, and ORCCA Technology. Figure 4 provides the addresses and phone numbers of each of these companies.

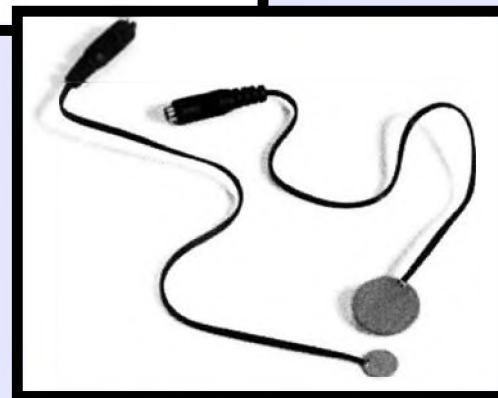


Figure 2-Battery Interrupter-AbleNet On-Line Catalog Retrieved March 12, 2006, from <http://www.ablenetinc.com/products.asp>

One stumbling block that is frequently encountered when attempting to infuse the use of single switches into a classroom environment is having only one or two activities that are accessed via single switches. This may be problematic for a number of reasons. First, it limits the number of opportunities for switch use which may influence the rate of skill acquisition. Second, the use of only a few different activities may influence the generalization of skills. Third, using only one or two activities as contexts for teaching may result in boredom on the part of the switch user. The following list provides a variety of ideas for maximizing the use of single switch technology in classroom environments. Special thanks goes to the many special educators, general educators, speech language pathologists, occupational therapists, and university students who helped create this list by sharing their ideas and experiences.

Continued on page 46

Single Switch Technology



Figure 3-Switch Interface-Ablenet On-Line Catalog-Retrieved March 12, 2006, from <http://www.ablenetinc.com/products.asp>

*Figure 4-Sample Switch
Adapted Mouse Manufacturers*

Product/Manufacturer	Phone Number	Web Address
Discover: Switch Madentec Limited	877-623-3682	www.madentec.com
IntelliSwitch IntelliTools, Inc.	800-899-6687	www.intellitools.com
SAM Cordless Switch Interface R.J. Cooper	800-752-6673	www.rjcooper.com
Switch Adapted Mouse ORCCA Technology Inc.	859-226-9625	www.orcca.com

- 1) **Truck with blocks.** A battery operated truck in the block area of a preschool classroom can push blocks and/or knock over block towers as children create a "construction zone."
- 2) **Red and Green Holiday Lights.** Strings of red and green holiday electrical lights can aid in a game of "Red Light, Green Light" in the gymnasium.
- 3) **Power Point Slide Show.** A slide show created using PowerPoint Software can be accessed to allow a student to share their report in geography.
- 4) **Spin-Art.** During an art lesson, a battery operated toy called Spin-Art provides an opportunity for students to create their own artwork, learn about primary colors, and discover the results of combining colors.
- 5) **Lights and Lamps.** An electric light for illuminating a fish tank can be turned off and on prior to and after cleaning the tank.
- 6) **Educational Software.** Computers can be accessed in order to utilize computer software and single switch games.
- 7) **Car-Art.** A battery operated car with a marker attached to its bumper can provide an opportunity to draw on a large piece of paper.
- 8) **Talking Picture Frame to Initiate Interactions.** A battery operated digitized picture frame that is located at the entrance to the dramatic play area of a preschool classroom can be programmed to say "I want to play" and be used to initiate interactions as a student enters that play area.
- 9) **Stapler.** With the assistance of a peer, an electric stapler can be utilized when compiling information for a class project.
- 10) **Single Switch Voice Output to Request Assistance.** A single switch device with voice output (e.g., the BIGmack® available from Ablenet) can be located on a student's desk and programmed to say "I need help" during independent work in math.
- 11) **Digitized Camera.** A battery operated digitized camera can be adapted and used to take pictures during a soccer game for the school yearbook.
- 12) **Popcorn Popper/Blender.** An electric popcorn popper and/or blender can be operated when making snacks.
- 13) **Talking Picture Frame to Share Information/Events.** A battery operated digitized picture frame with recorded

messages regarding what happened at school/home (e.g., "We had pizza today for lunch, YUMMM!", "My signed permission slip is in my backpack") can be accessed in order to share information across environments.

- 14) **Books on Tape/CD.** An electric tape recorder can allow a student to listen to books on tape.
- 15) **Shadow Puppet Show.** An overhead projector can create an opportunity for a study to participate as her class performs a shadow puppet show.
- 16) **Talking Photo Album as a Schedule Reminder:** A battery operated photo album with digitized speech output (with corresponding pictures/photos inserted) can remind the student about the schedule for the school day.
- 17) **Musical Chairs.** An electric tape recorder can be accessed to start and stop the music during a game of musical chairs.
- 18) **Fan.** An electric fan can be turned on/off during a science project to examine the effect of "wind" on objects that are heavy and light.
- 19) **Talking Photo Album as a Talking Book.** A battery operated photo album with digitized speech output (with corresponding pictures inserted) can allow a student to independently listen to books being read and/or create their own books.
- 20) **Tape Recording of Sound Effects.** An electric tape player can be used to play prerecorded "sound effects" during the school play.

In summary, this article offers 20 ways to maximize the use of single switch technology in classroom environments. Although not exhaustive, this list illustrates a wide range of opportunities for using single switch technology and can serve as a "spring-board" as teams consider ways to maximize the use of single switch technology for students with disabilities. Increasing the number of functional and meaningful opportunities to use single switch technology may increase rate of skill acquisition, support the generalization of skills, and increase interest on the part of the switch user.

*References are available upon request from the
Utah Personal Development Center ■*